Identification Friend or Foe (IFF)

A paragraph in the article Anciliary Devices will provide a general description of IFF. This information in this article which has been provided by Ch RE Gordon Wood provides some details of some of the specific units

242 Interrogator (With 293Q Radar)

The Mk 3 IFF system comprised a transponder which swept 3 small frequency bands allocated to Identification Operations. The transponder was actuated by an interrogator signal emanating from a low power transmitter receiver associated with the main radar set. Radar and interrogator transmissions were simultaneous, thus the response and echo returned together. The operating frequency was capable of being changed quickly and easily because of enemy jamming.

The transmitter design allowed high (10 Kw) or low (2Kw) power output. The frequency could be varied in a band of about 30 Mcs between 157 and 187 Mcs.

The transmitter and preamplifier contained an oscillator, series modulator and built in power unit, a preamplifier for the responsor, a gas gap TR switch for connecting the TX and responsor preamplifier to the common aerial and artificial load for measuring Tx output. The series modulator received its initiating pulse from the radar transmitter pulse, delayed by 3 µseconds. This caused the oscillator to transmit.

The essential link between the radar set and the interrogator was the modulator and mixer unit whereby the interrogator Tx pulse was synchronised as a sub multiple of the radar pulse rate.

The responsor was a superhetrodyne receiver having 1 RF stage, local oscillator, diode mixer, 5 IF stages, diode detector and video amplifier.

The aerial array was a chandelier type with dipoles and reflector assemblies. These comprised two dipoles connected in parallel and mounted half a wavelength apart. Each dipole had a single reflector fixed approximately 1/5th of a wavelength behind the dipole. The aerial was fed by unbalanced pyrotenax cable.

242P Interrogator (With 277Q Radar)

Intended to be displayed on a UDU (Outfit JM) principally. This was similar to Outfit JH in that radar signals were sector selected and presented on upper trace, while IFF signals were continually shown on the lower trace, except during signal selection. The interrogator aerial turned with the radar aerial. As with the UDU, the IFF signals were being compared with faint after glow of a short bright trace. High brilliancy was not required and the repetition rate could be low.

251M

This was a beacon fitted in surface craft which may have been required to work with ASV fitted aircraft. When installed ashore it was known as 251M/S, and was used as a means of indicating the section of shore under consideration to an aircraft fitted with interrogator at the right frequency. It had 3 functions:

1. It enabled ASV fitted aircraft to determine the range of the beacon.
2. It operated a warning light which indicated that a signal was being received. In aircraft carriers the light was fitted in the ADR.

3. It enabled messages to be sent to the ASV apparatus or interrogator by substituting a handkey for the automatic coding device.

The components were Power supply, Control panel and auto voltage control gear, Distributing board and rectifier unit, Transmitter 7AB, Receiver P27 or P27A, Aerial feeder system, Remote indicator unit. Under favourable conditions, a range of 70 miles could be obtained with aircraft flying at 2,000 feet. With ASV/X (Lucero), the range was reduced to 55 miles.